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Preserving Game Meats

CURING AND SMOKING GAME

One purpose in curing meat is to make a high-quality meat product for future use. Only properly butchered and thoroughly cooled meats should be used. Fresh meats can be home-cured by two methods: dry cure or pickle cure (often called sweet pickle cure). Traditionally, dry-cured meats were not injected with sweet pickle. However, when temperature control is difficult or impossible, injecting pickle helps to ensure a safe, quality product.

The purpose of injecting or pumping is to distribute pickle ingredients throughout the interior of the meat so that curing begins on the inside and cures outward at the same time that curing begins on the outside and works inward. This protects the meat against spoilage and provides a more even curing.

Pumping usually is done with a stitch pump, an instrument with a hollow needle and holes in the needles through which brine can come out when the needle is inserted in the meat. (Stitch pumps can be ordered from Morton Salt Co., 110 N. Walker Dr., Chicago, IL 60606)

Stitch Pumping: Pickle recipes usually are given on packages of commercial cure. Start by scrubbing the tip of the pump in warm soapy water, then rinse. To keep the pump sanitary while pumping meat, do not touch the needle with hands or lay it down. When not in use, put pump needle-end down in container that holds the pickle.

To use, draw pump full of pickle and insert needle all the way into the meat. Push with slow, even pressure. As pickle is forced into meat, draw the pump toward you to distribute pickle as evenly as possible. Always fill pump full of pickle to prevent air pockets.

Meat will bulge a little and a small amount of pickle will run out of the meat when the pump is withdrawn. To stop the pickle from running out after the needle is withdrawn, pinch the needle holes together with thumb and forefinger for a few seconds. Use three or four pump-fulls of pickle for legs and shoulders that weigh 10 to 15 pounds and five or six pump-fulls for those that weigh 15 to 25 pounds. For smaller legs and shoulders fewer injections are needed.

Dry-Curing Game: After pumping, apply dry cure using the recipe below or a commercial product. Rub well over all the meat, especially around the bones, hock and the knee joint. For 100 pounds of meat, dry cure using 6 pounds salt, 3 pounds sugar, and 3 ounces sodium nitrate or 1 ounce sodium nitrite.

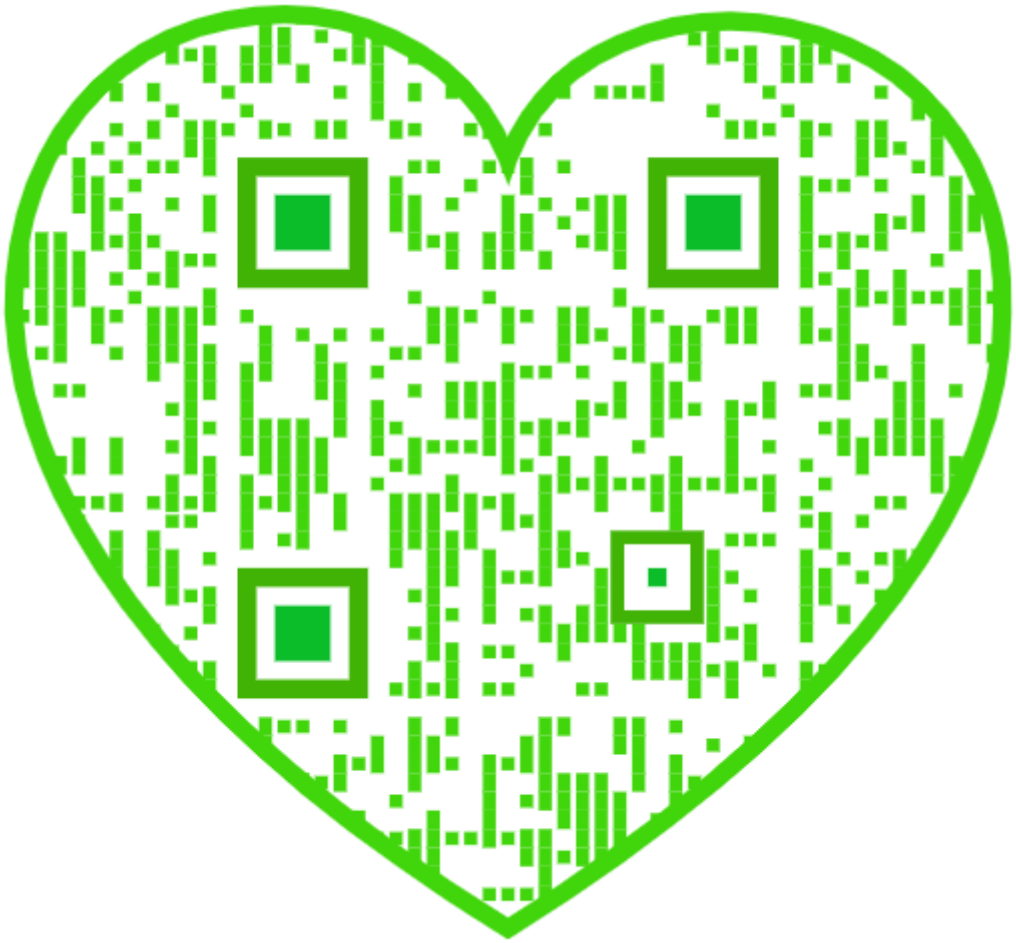
Rub dry cure mix over entire leg surface. Use ⅓ of mix on first day, ⅓ of mix on seventh day and ⅓ of mix on 14th day. Place on flat surface, uncovered, at 38 °F for two days per pound of leg, or approximately four to six weeks. Curing action stops when temperature inside the meat gets below 34 °F.

When the meat is cured, let the smaller legs soak for 30 to 40 minutes and larger ones 60 minutes in lukewarm water. Then work and scrub with stiff brush to remove grease and salt. Meat is now ready to smoke.

Using Sweet Pickle Cure: Put pumped leg in a container such as a crock, barrel, sealed wooden box or a stainless steel container, or in a USDA-approved plastic container that is intended for food products, such as containers used in the restaurant trade. Do not use other metal containers.

Add water to cover the meat. Remove the meat and add enough salt to the water so an egg will float, measuring as you add. If you do not have a specific pickle cure recipe, add sugar to equal ½ the amount of salt used. Add commercial cure to pickle according to package directions.

Put leg into pickle. Let stand at 38 °F for three days per pound of meat (45 days for 15 pounds meat). If temperature becomes warm and brine becomes ropey (slimy) remove meat. Wash the meat. Boil and skim pickle or make a new one. The new pickle should be as strong as the original.



If space is a limiting factor, it might be advantageous to bone out the wild game. Keep the pieces of meat as large as possible and then use one of the procedures described above for curing. Smoke after curing is complete.

Smoking: Smoke leg until golden brown at 110 °F to 125 °F. Then raise smokehouse temperature to 170 °F until the internal temperature of the meat reaches a minimum of 137 °F. Usually the internal temperature is brought up to 141 °F. A meat thermometer will make it easy to check temperature.

Hardwood such as hickory, maple, chokecherry, oak or apple is best for smoking. Never use a soft wood such as pine because the resin tars will produce off-flavors.

Smokehouses can be as simple as a tarp covering or as sophisticated as a commercial unit. An old refrigerator makes a useful smokehouse. CAUTION: Remove the locking device from the door and replace with a simple latch that will lock only from the exterior.

Drying or Making Jerky: Drying or "jerkying" meat is an art that has been known since the dawn of civilization. There are many recipes which, can be tried, but before you begin check the jerky maker's check list, and then adapt these directions to your own circumstances.

A Jerky Maker's Check List:

- Use fresh lean meat that is free of fat and connective tissue.
- Slice the meat across the grain.
- Add the correct amount of seasoning. If you do not have a scale, use approximate equivalent measures for seasonings as follows:
  - Salt
    10.5 ounces (298 grams) = 1 cup
    8.0 ounces (227 grams) = ¾ cup
    3.0 ounces = 4½ level Tablespoons
  - Sugar
    5.0 ounces (141 grams) = ⅔ cup
    3.5 ounces (100 grams) = ½ cup
    1.0 ounce = 2 level Tablespoons
  - Ground spices
    0.5 ounce = 6 level teaspoons
    0.08 ounce = 1 level teaspoon
  - Saltpeter
  - Potassium Nitrate
    0.3 ounce = 2 level teaspoons
- Cure the meat for the correct length of time at 38 °F. Salted meat should be placed in wooden, stainless steel or stone containers.
- Keep the drying or smoking temperature in the smokehouse or oven at 120 °F (use a thermometer).
- If an oven is used, line the sides and bottom with aluminum foil to catch the drippings. Open the door to the first or second stop, or prop open to allow moisture to escape and to lower the oven temperature. A fan will speed air circulation and the drying process.
- Use hardwood for smoking.
- Remove the jerky from the smokehouse or oven before it gets too hard for your taste. Five pounds of fresh meat should weigh about 2 pounds after drying or smoking.
- Store jerky in clean, airtight containers or plastic bags at room temperature, or wrap it in freezer paper and freeze it. Check often during the first month to be sure jerky is dry enough to keep well. Although jerky will last almost indefinitely at any temperature, its quality deteriorates after a few months.
- Seasonings and smoking or drying times can be changed to suit individual tastes. Be careful however, to maintain minimum temperatures to avoid bacterial growth.

Large pieces of meat that are pickle-cured make excellent jerky when sliced and dried or smoked. Corned meat pickles are preferred because spices are included in the cure.

Deer Jerky: Debone the hind leg, splitting it into individual muscles, top, bottom and tip. Pump with brine (you can use ordinary syringe; inject into several areas). Use 2 pounds of commercial salt cure mixture per gallon of water. Place in a crock or USDA-approved plastic container. Do not use plastic containers such as garbage cans, plastic bags or supermarket ice cream buckets. Cover completely with brine and weight meat down to keep it submerged.

Store in cooler (38 °F) for 10 days. Every two days, change the position of the meat and weight it down again. After 10 days, remove meat from the brine and smoke for five hours at 150 °F. Hang to dry at room temperature (about two weeks). Cut off to use as needed.

Oven-Method Jerky: Slice 3 pounds of meat ¼ inch thick. Remove all fat. Lay the meat out in a single layer on a clean counter surface. Dab each piece with a brush dipped in a mixture of ½ teaspoon liquid smoke to 2 tablespoons of water. Salt generously. Sprinkle with pepper if desired. Place the strips layer on layer in a large bowl or crock. Place a plate and weight on the top of meat. Let stand at a cool temperature (45 °F or less), overnight or at least six hours. Remove meat strips from bowl and dry.

Remove oven racks. Stretch meat strips across the racks. Allow the edges to touch but not overlap. Do not cover the entire rack. Allow room for air circulation in the oven. Arrange the racks so the top rack is no closer than 4 inches from the top source of heat and the bottom rack no closer than 4 inches from the bottom of the oven. Set the oven temperature at 150 °F and let the meat dry for about 11 hours. Check the meat early in the drying process. If there is excessive drip, catch it on aluminum foil on a rack near the bottom of the oven. Lower the temperature till the oven feels warm but does not cook the meat. Cool and store in an airtight container.

Note: Frozen meat may be "jerkied." Thaw meat and proceed according to one of the recipes given.

CORNING GAME MEATS

You can corn venison, antelope, moose, bear or beef with the same corning method. It makes all of these meats plain good eating. People who will not eat wild meats may like them corned, as corning takes out the musky wild flavor and tenderizes the toughest wild meats. A good piece of round is wonderful corned, but even less desirable cuts of meat like the brisket can be corned.

To make 6 gallons of corning liquid:

- 3 pounds (6¾ cup) salt
- 10 ounces (1¼ cup) sugar
- 2 ounces sodium nitrate
- ½ ounce sodium nitrite
- 3 level teaspoons black pepper
- 3 level teaspoons ground cloves
- 6 bay leaves
- 4 level tablespoons mixed pickling spice

For onion flavor, add one medium sized onion, minced. For garlic flavor, add four garlic cloves, minced. Put the ingredients into a pickle crock or glass jar and add enough water to make a total of 6 gallons, including the ingredients. The container should be covered. The ideal temperature for corning meat is about 38 °F. Higher temperatures need not affect the end result of the corning process at all, if, for every 15 degrees of temperature above 38 °F you add one-third more salt. At 83 °F add 3 pounds more salt, making a total of 6 pounds of salt. Place meat into the liquid. Put a heavy plate on meat; weight the plate, if necessary, to keep meat below pickle brine. Leave the meat in corning liquid for 15 days. On the fifth and 10th days, stir the liquid well, remove the meat and put it back so the bottom piece is on top. After the 15th day remove the meat.

Use what you want immediately, and store the balance in a cool place refrigerated at 38 °F. It is recommended that after meat is removed from the corning liquid it should be cooked and consumed within one week or frozen for up to one month.

The meat at this stage has a grayish pink color. When cooked, corned meat changes to the characteristic pink color associated with a cured product.

To cook, place the corned meat in a pan with a cover. Add cold water to cover meat. Bring to a boil and remove the scum from the water. Reduce the heat and simmer for about five hours or until tender. Season to taste and serve as the main meat dish.

CANNING GAME MEATS

Caution: Do not can meat unless you have a pressure canner. Low-acid foods, such as meat and most mixtures of foods, should never be canned using the water-batch method. Pressure and adequate time are necessary to produce safe canned meat.

Only good-quality, properly cleaned and cooled game should be canned. To ensure safety of canned meats, all jars or cans must be processed in the pressure canner to get a sufficiently high temperature for a long enough time to kill all bacteria that cause spoilage or food poisoning.

Large game animals are canned like beef, and small game animals and birds like poultry. Either type of meats can be raw packed or hot packed.

Small Game Animals and Birds: Choose freshly killed and dressed healthy animals or birds. Dressed meat should be soaked 1 hour in water containing 1 tablespoon of salt per quart, then rinsed. Remove excess fat. Cut meat into suitable sizes for canning. Can with or without bone.

Hot pack: Boil, steam or bake meat until about two-thirds done. Add 1 teaspoon salt per quart, if desired. Fill jars with pieces and hot broth, leaving 1¼-inch headspace. Adjust lids and process as indicated in Tables 1 and 2.

Raw pack: Add 1 teaspoon salt per quart, if desired. Fill jars loosely with raw meat pieces, leaving 1¼-inch headspace. Do not add liquid. Adjust lids and process as indicated in Tables 1 and 2.

Large Game Animals (Strips, Cubes or Chunks):

Choose high-quality chilled meat. Remove excess fat. Soak strong-flavored wild meats for 1 hour in brine water containing 1 tablespoon of salt per quart. Rinse. Remove large bones.

Hot pack: Precook meat until rare by roasting, stewing or browning in a small amount of fat. Add 1 teaspoon of salt per quart, if desired. Fill jars with pieces and add boiling broth, meat drippings and water or tomato juice, leaving 1-inch headspace.

Raw pack: Add 1 teaspoon of salt per quart, if desired. Fill jars with raw meat pieces, leaving 1 inch headspace. Do not add liquid.

Adjust lids and process according to Tables 1 and 2 using without bone schedule.

Canning Ground or Chopped Meat (For bear, beef, lamb, pork, sausage, veal, venison):

Choose fresh, chilled meat. With venison, add one part high-quality pork fat to three or four parts venison before grinding. For sausage, use freshly made sausage, seasoned with salt and cayenne pepper (sage may cause a bitter off-flavor). Shape chopped meat into patties or balls or cut case sausage into 3- to 4-inch links. Cook until lightly browned. Ground meat may be sautéed without shaping. Remove excess fat. Fill jars with pieces. Add boiling meat broth, tomato juice or water, leaving 1-inch head-space. Add 1 teaspoon of salt per quart to the jars, if desired. Adjust lids and process according to recommendations listed in Tables 1 and 2.

TABLE 1. CANNING TIME TABLE FOR GAME MEATS IN A DIAL-GAUGE CANNER

			Canner Pressure (PSI)		
Pack	**Jar Size**	**Time (min.)**	**0-2000 ft.**	**2001-4000 ft.**	**Above 4000 ft.**
No Bone & Ground (hot or raw)	Pints	75	11	12	13
	Quarts	90	11	12	13
With Bone (hot or raw)	Pints	65	11	12	13
	Quarts	75	11	12	13

TABLE 2. CANNING TIME TABLE FOR GAME MEATS IN A WEIGHTED-GAUGE CANNER

			Canner Pressure (PSI)	
Pack	**Jar Size**	**Time (min.)**	**0-1000 ft.**	**Above 1000 ft.**
No Bone & Ground (hot or raw)	Pints	75	10	15
	Quarts	90	10	15
With Bone (hot or raw)	Pints	65	10	15
	Quarts	75	10	15

SOURCES:
1. South Dakota State University Extension Service. *Wild Side of the Menu No. 3 – Preservation of Game Meats*..
2. Garden-Robinson, Julie, Martin Marchello and Pat Beck. *A Pocket Guide to Care and Handling of Deer from Field to Table.* NDSU Extension Service. NCR 525, April 1994.

This information has been reviewed and adapted for use in South Carolina by E.H. Hoyle, Extension Food Safety Specialist and R.D. Willey Extension 4-H Natural Resources Specialist, Clemson University.

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